# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/990,085 | 11/21/2001 | Radomir Mech | MS1-1031US | 1282 |

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|---|---|---|
| 22801 | 7590 | 04/21/2005 |

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| EXAMINER |
|---|
| NGUYEN, KIMBINH T |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2671 | |

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| | Application No. | Applicant(s) |
| :---: | :--- | :--- |
| **Office Action Summary** | 09/990,085 | MECH, RADOMIR |
| | **Examiner** | **Art Unit** | |
| | Kimbinh T. Nguyen | 2671 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on <u>21 May 2004</u>.

2a)☐ This action is **FINAL**.    2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-29* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>21 May 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All    b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>5/21/04</u>.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

## DETAILED ACTION

1.     This action is responsive to amendment filed 05/21/04.

2.     Claims 1-29 are pending in the application.

### *Double Patenting*

3.     The nonstatutory double patenting rejection is based on a judicially created

doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the

unjustified or improper timewise extension of the "right to exclude" granted by a patent

and to prevent possible harassment by multiple assignees.  See *In re Goodman*, 11

F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225

USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*,

418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be

used to overcome an actual or provisional rejection based on a nonstatutory double

patenting ground provided the conflicting application or patent is shown to be commonly

owned with this application.  See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a

terminal disclaimer.  A terminal disclaimer signed by the assignee must fully comply with

37 CFR 3.73(b).

4.     Claims 1-3, 5, and 1 1-20 are provisionally rejected under the judicially created

doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 7,

10, 12 and 13 of copending Application No. 09/991,526. Although the conflicting claims are not identical, they are not patentably distinct from each other because the applicant's claims have a one to one correspondence in limitations to the above claims found in Application No. 09/991,526.

Referring to claim 1, both this claim and claims 1 and 2 of Application No. 09/991,526 contain a method for rendering a scene comprising measuring a travel distance through a gaseous object, converting the gaseous object distance to a color component and blending the color component of the gaseous object with a color component of a non-gaseous object. This application does not refer to an alpha channel because the claims in this case are more general.

Referring to claim 2, the remarks presented above with respect to claim 1 apply equally to this claim. Although the other case does not refer to a linear distance, this is obvious in that determining a distance between objects is generally considered in a straight line.

Referring to claim 3, both this claim and claim 3 of Application No. 09/991,526 provide where the travel distance is measured by calculating the depth between the front and back faces of the gaseous object.

Referring to claim 5, both this claim and claim 7 of Application No. 09/991,526 provide for computer-executable instructions.

Referring to claim 11, both this claim and claim 12 of Application No. 09/991,526 provide where the graphical display system is a flight simulator.

Referring to claim 12, both this claim and claim 13 of Application No. 09/991,526

provide where the graphical display system is a game.

Referring to claim 13, both this claim and claim 10 of Application No. 09/991,526 provide for a display unit.

Referring to claim 14, the remarks presented above with respect to claim 1 apply equally to this claim.

Referring to claim 15, the remarks presented above with respect to claim 3 apply equally to this claim.

Referring to claim 16, the remarks presented above with respect to claim 13 apply equally to this claim.

Referring to claim 17, the remarks presented above with respect to claim 5 apply equally to this claim.

Referring to claim 18, the remarks presented above with respect to claim 1 apply equally to this claim.

Referring to claim 19, the remarks presented above with respect to claim 3 apply equally to this claim.

Referring to claim 20, the remarks presented above with respect to claim 1 apply equally to this claim.

This is a <u>provisional</u> obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

## *Claim Rejections - 35 USC § 103*

5.     The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

6.     Claims 1, 2, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Brothers et al. (6,417,862).

**Claim 1**, Brothers et al. discloses a method for rendering a visual scene (to

produce display colors; col. 1, lines 19-20) comprising measuring a travel distance

through a gaseous object (calculates an approximate value of the fog function which

corresponds to the distance z; col. 2, lines 6-10; the distance z represents the distance

from the viewer to the object; col. 3, lines 6-7), converting the gaseous object distance

to a color component (the interpolation circuitry receives a distance z and coupled to

send a value of a fog function F to the color blending ; col. 3, lines 12-13); Brothers

does not directly disclose converting the distance z to the color component; however,

Brothers teaches using interpolating circuitry to interpolate (convert) the distance z to

the color component which depends on variable distance z, for example if the object

was distant, then the fog function (distance z value) might be equal to one and the distal

color would equal the fog color. At the other extreme, if the object was close, the fog

function might be equal to zero and the display color would equal the true color (red,

green and blue) and at the distances in between the two extremes, the fog function

determines the blending of the true color and the fog color; see col. 3, lines 1-30). It

would have been obvious to one of ordinary skill in the art at the time the invention was

made to include the linear interpolation taught by Brothers for interpolating or converting

the distance z to a color component, because when the fog function equals to zero and

the display color would equal the true color which including red, green and blue, it

means the distance z has been converted to the true color (col. 3, lines 27-28); and

Brothers discloses blending the color component of the fog object (fog color) with a

color of non-fog object (true color) to produce a pixel in the visual scene (and outputs

the display color; col. 3, lines 13-15).

**Claim 2**, Brothers discloses where the travel distances are linear distances (the

distance variable z may vary from 0 to infinitive; col. 3, line 66 through col. 4, line 5; fig.

2A).

**Claim 4**, Brothers discloses where converting the gaseous object distances

employs a linear gaseous model (linear interpolation; col. 6, lines 10-32).

7.      Claims 3, 5, 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Brothers et al. (6,417,862) in view of Deering (6,762,760).

**Claim 3**, Brothers does not teach a depth of the gaseous object between front

and back faces of the gaseous object from a reference point; however, Deering teaches

the cylindrical radial distance z is computed from a point on cylinder 206 (related to front

and back faces) to the viewpoint 202; col. 12, lines 27-50). It would have been obvious

to one of ordinary skill in the art at the time the invention was made to incorporate the

calculating of radial distance taught Deering into the interpolating fog function and z

distance of Brothers for producing display color, because the amount of fogging applied

to objects remains unchanged through these rotation since the amount of fogging

applied is dependent on the cylindrical radial distance that remains unchanged (col. 4, lines 43-46).

**Claim 5**, the rationale provided in the rejection of claim 1 is incorporated herein. In addition, Deering discloses one or more computer-readable media comprising computer-executable instructions (col. 17, lines 59-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the computer-readable taught Deering into the interpolating fog function and z distance of Brothers for producing display color, because it would receive graphics data from any of various sources (col. 7, lines 38-42).

**Claim 6**, Brothers discloses where the blending of a color component from the gaseous object with the color component of a non-gaseous object generates a pixel with visual realism (display color; col. 1, lines 27-29; col. 3, lines 14-15).

**Claim 7**, Deering discloses assigning a constant density to the gaseous object (col. 17, lines 56-58).

**Claim 8**, Deering teaches a gaseous phenomena generator to determine a distance travel through a gaseous phenomenon from a reference point based on a viewpoint (col. 12, lines 27-44); Deering does not teach convert the distance traveled to an attenuation factor; however, Brothers teaches this feature (col. 3, lines 23-66) a blending unit to blend a pixel color to render a final pixel color (outputs the display color). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the interpolating taught by Brothers into the Deering's system for converting the distance z to an attenuation factor F, because using

attenuation factor, it would increase the accuracy of the interpolation to produce the color display. 9col. 7, lines 22-23).

**Claim 9**, Deering discloses where the gas generator module is implemented as a software program layer operating in conjunction with computer hardware (col. 5, line 57 through col. 7, line 52).

**Claim 10**, Deering discloses where the graphical display system is an interactive graphics machine (col. 5, line 57 through col. 7, line 52).

8.      Claims 11-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brothers et al. (6,417,862) in view of Deering (6,762,760) and further in view of Hollis et al. (6,580,430).

**Claims 11-13**, Hollis discloses where the graphical display system might be a flight simulator (col. 3, line 21);the graphical display system is a game system (col. 6, line 49).; a display unit configured to display the final color to the user (col. 5, line 52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the flight simulator taught by Hollis into the Deering's system for converting the distance z to an attenuation factor F, because it would improve fog simulation (abstract).

**Claim 14**, the rationale provided in the rejection of claim 8 is incorporated herein. In addition, Deering discloses using the distance as a variable (or attenuation factor), to determine the fog value (col. 13, lines 10-18, lines 47-62; col. 15, lines 48-53).

**Claim 15**, the remarks presented with respect to claim 3, above, apply equally to this claim. ·

**Claim 16**, the remarks presented with respect to claim 13, above, apply equally to this claim.

**Claim 17**, the remarks presented with respect to claim 5, above, apply equally to this claim.

**Claim 18**, the remarks presented with respect to claim 1, above, apply equally to this claim.

**Claim 19**, the remarks presented with respect to claim 3, above, apply equally to this claim.

**Claim 20**, Deering discloses initializing the pixel color value (col. 12, line 66); determining a travel distance between the front and back face of an object (fog) as shown in the rejection to claim 3 above, and the standard means for determining this distance would be to subtract the distance between front and back points.

**Claims 21 and 22**, Deering discloses where the front distance value and the back distance value are determined using a linear equation; the travel distance is converted to the fog factor by solving a linear equation (col. 10, line 5) (col. 13, line 63 through col. 14, line 13).

**Claims 23 and 24**, Hollis discloses where the travel distance is converted to the fog factor by solving an exponential equation (col. 10, line 17); the travel distance is converted to the fog factor by solving an exponential-squared equation (col. 10, line 18). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate using the exponential equation exponential-squared equation taught by Hollis into the system of Deering for calculating fog factor, because using fog

equation, it would provide an improved curtain-type fog effect, which provides an

interesting visual effect superior (col. 10, lines 45-55).

**Claim 25**, the remarks presented with respect to claims 18, 19 and 20, above,

apply equally to this claim.

**Claim 26**, the remarks presented with respect to claims 21 and 25, above,

apply equally to this claim.

**Claim 27**, the remarks presented with respect to claims 22 and 25, above,

apply equally to this claim.

**Claim 28**, the remarks presented with respect to claims 23 and 25, above,

apply equally to this claim.

**Claim 29**, the remarks presented with respect to claims 24 and 25, above,

apply equally to this claim.

### *Response to Arguments*

9.     Applicant's arguments with respect to claims have been considered but are moot

in view of the new ground(s) of rejection.

10.    Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kimbinh T. Nguyen whose telephone number is (571)

272-7644.  The examiner can normally be reached on Monday to Thursday from 7:00

AM to 4:30 PM.  The examiner can also be reached on alternate Friday from 7:00 AM to
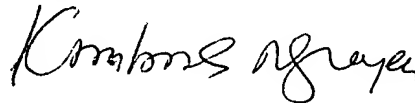
3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mark Zimmerman, can be reached at (571) 272-7653. The fax phone

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 18, 2005

**KIMBINH T. NGUYEN**
**PRIMARY EXAMINER**